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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,445	03/18/2005	Chang-Hee Lee	5489P073	2805

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EXAMINER	
PHAN, HANH	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,445	LEE ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the RCE filed on 08/15/2008.

2. The indicated allowability of claims 1-21 is withdrawn in view of the newly discovered reference(s) to Malyon et al (EP 0060033 A) and Green et al (US Patent No. 6,600,760). Rejections based on the newly cited reference(s) follow.

Claim Objections

3. Claim 3 is objected to because of the following informalities:

In claim 3, line 2, the phrase "the an automatic power controller" should be changed to --the automatic power controller--.

In claim 3, line 2, the phrase "the detector is a photo-diode" should be changed to --the detector is a monitor photo-diode--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation **"the monitor photo-diode"** in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5-7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Malyon et al (EP 0060033 A).

Regarding claim 1, referring to Figure 1, Malyon et al teaches an apparatus, comprising:

an optical transmitter (i.e., the second laser 11, Fig. 1) having a resonance wavelength characteristic that varies with the refractive index of the optical transmitter, wherein the optical transmitter (the second laser 11, Fig. 1) receives a narrow band injected wavelength signal from an incoherent light source (i.e., the first laser 10, Fig. 1)(see Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34);

a controller (i.e., phase sensitive detector 18 and temperature and bias tuning circuit 16, Fig. 1) that substantially matches a resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal by changing the

refractive index of the optical transmitter (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34); and

a detector (i.e., detector 21, Fig. 1) to measure a parameter of the optical transmitter to provide a feedback signal to the controller to control the refractive index of the optical transmitter, wherein the detector measures the parameter that determines a point at which the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are substantially matched (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claim 2, Malyon et al further teaches the optical transmitter having a resonance wavelength characteristic that varies with the refractive index of the optical transmitter is a Fabry-Perot laser diode (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claims 3, 7 and 11, Malyon et al further teaches wherein the detector (detector 21, Fig. 1) is an optical power monitor and the controller is a temperature controller (temperature controller 16, Fig. 1) that controls the direction and strength of temperature emitted from a thermo-electric cooler (i.e., cooler 17, Fig. 1) so that an average optical power received at the monitor photo-diode is maintained at approximately a maximum level (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claim 5, Malyon et al further teaches wherein the controller changes the operating temperature of the optical transmitter to change the refractive index of the

optical transmitter (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claim 6, Malyon et al further teaches wherein the controller changes the bias current supplied to the optical transmitter to change the refractive index of the optical transmitter (i.e., Fig. 1, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malyon et al (EP 0060033 A) in view of Green et al (US Patent No. 6,600,760).

Regarding claim 4, Malyon et al differs from claim 4 in that he fails to specifically teach a Fabry-Perot laser diode with antireflective coating on one or more facets of the laser diode. However, Green et al teaches a Fabry-Perot laser diode with antireflective coating on one or more facets of the laser diode (i.e., Figs. 2A and 2B, col. 5, lines 24-67 and col. 6, lines 1-18). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the Fabry-Perot laser diode with antireflective coating on one or more facets of the laser diode as taught Green et al in the system of Malyon in order to select the wanted signal. One of ordinary

skill in the art would have been motivated to do this since allowing selecting a wanted wavelength signal stabilized.

10. Claims 8-10 and 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malyon et al (EP 0060033 A) in view of Lee et al (Pub. No.: US 2001/0004290).

Regarding claims 8, 12 and 18, Malyon et al differs from claims 8, 12 and 18 in that he fails to specifically teach a wavelength division multiplexer to route the narrow band wavelength to the optical transmitter. However, Lee et al teaches a wavelength division multiplexer (i.e., DMUX, Figs. 3, 4a, 4b and 5) to route the narrow band wavelength to the optical transmitter (i.e., optical transmitter F-P LD, Figs. 3. 4a, 4b and 5, pages 2-4, paragraphs [0046]-[0084]). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the wavelength division multiplexer to route the narrow band wavelength to the optical transmitter as taught Lee et al in the system of Malyon in order to distribute the wanted wavelength signal to the optical transmitters. One of ordinary skill in the art would have been motivated to do this since allowing separating the desired wavelength signal stabilized to the optical transmitter and reducing the loss of signal and the noise signal.

Regarding claim 9, the combination of Malyon et al and Lee et al teaches further comprising: a broadband light source (i.e., a broadband light signal ILS, Figs. 3, 4a, 4b and 5 of Le et al) to supply a broadband wavelength signal to the wavelength division multiplexer and the wavelength division multiplexer spectrally slices the broadband

wavelength signal (i.e., Figs. 2, 3, 4a, 4b and 5 of Lee et al, pages 2, 3 and 4, paragraphs [0046]-[0084]).

Regarding claim 10, the combination of Malyon et al and Lee et al teaches the wavelength division multiplexer and the optical transmitter are included in a passive optical network (i.e., Figs. 2, 3, 4a, 4b and 5 of Lee et al, pages 2, 3 and 4, paragraphs [0046]-[0084]).

Regarding claims 13 and 19, the combination of Malyon et al and Lee et al teaches further comprising: changing the temperature of the optical transmitter to wavelength lock the resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal (i.e., Fig. 1 of Malyon, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claims 14, 16 and 21, the combination of Malyon et al and Lee et al teaches further comprising: controlling also the bias current supplied to the optical transmitter to wavelength lock the resonant wavelength of the optical transmitter to the wavelength of the injected wavelength signal (i.e., Fig. 1 of Malyon, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Regarding claims 15, 17 and 20, the combination of Malyon et al and Lee et al teaches further comprising: monitoring the optical power emitted from the optical transmitter to provide a feedback signal to determine when the resonant wavelength of the optical transmitter and the wavelength of the injected wavelength signal are wavelength locked (i.e., Fig. 1 of Malyon, page 4, lines 26-31, page 5, lines 1-36, page 6, lines 1-35, and page 7, lines 1-34).

Response to Arguments

11. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

/Hanh Phan/

Primary Examiner, Art Unit 2613